

U.S. TITANIUM SITE
ADMINISTRATIVE RECORD FILE * **
INDEX OF DOCUMENTS

I. SITE IDENTIFICATION

1. Report: Water Well Completion Report, prepared by the Division of Mineral Resources, Commonwealth of Virginia, 9/15/66. P. 100001-100003.
2. Letter to Mr. David Olson, American Cyanamid Company, from Mr. Frank DeLuca, Geraghty & Miller, Inc., re: Results of river contamination investigation, 11/19/71. P. 100004-100013. The following are attached:
 - a) a test-interceptor well locations map;
 - b) the ph value samples results;
 - c) an American Cyanamid Company map;
 - d) an American Cyanamid Company sampling stations map.
3. Report: Documentation of Fish Kill Investigation at the Piney River Plant, prepared by the Commonwealth of Virginia, 8/31/71. P. 100014-100202. The following are attached:
 - a) a Fish Kill Investigation Report;
 - b) a letter requesting payment for the cost of the fish kill;
 - c) a Fish Kill Report including expense sheets;

* Administrative Record File available 7/26/89, updated 4/2/90 and 4/6/00.

** Note: Company and organizational affiliation is identified in the index only when it appears in the file.

- d) three Fish Kill Reports;
 - e) a memorandum regarding another fish kill.
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- 4. Report: Evaluation of Copperas Contamination at the American Cyanamid Company Plant Site, prepared by Geraghty & Miller, Inc., 5/72. P. 100203-100225.
 - 5. Report: Final Report on Evaluation of Environmental Pollution Control Measures for Copperas Pile Run-off, prepared by American Cyanamid Company, 7/27/72. P. 100226-100240.
 - 6. Letter to Mr. D.C. Praeger, Virginia State Water Control Board, from Mr. J.F. Hopkins, American Cyanamid Company, re: Transmittal of the plan for abatement of pollution due to run-off, 10/31/72. P. 100241-100244.
 - 7. Letter to Mr. J.F. Hopkins, American Cyanamid, from Mr. Millard Robbins, Bureau of Applied Technology, re: Approval of run-off plan in accordance with the March 12, 1973 memorandum, 4/10/73. P. 100245-100247. The memorandum regarding the run-off of waste at the site is attached.
 - 8. Letter to Mr. Tedd H. Jett from Mr. Vance Wilkins, Jr., re: Transmittal of the Application for a State No-Discharge Certificate, 10/21/74. P. 100248-100251. The application and two site maps are attached.
 - 9. Letter to Mr. Fred L. Fox, Geonics, from Mr. Tedd Jett, Virginia State Water Control, re: Transmittal of a water well completion report, 1/17/79. P. 100252-100255. The report is attached.
 - 10. Letter to Mr. Henry A. Williams, United States Titanium, from Mr. Fred Fox, Geonics, re: Preliminary Evaluation of Proposed Copperas Disposal Area, 1/7/79. P. 100256-100257.
 - 11. Letter to Mr. Tedd H. Jett, Virginia State Water Control Board, from Mr. Fred Fox, Geonics, re: Authorization from U.S. Titanium to have a copy of a report sent, 2/12/79. P. 100258-100269. A letter regarding logs for five test borings and ten test

hole logs are attached.

12. Letter to Mr. Henry A. Williams, U.S. Titanium, from Mr. Fred Fox, Geonics, re: Site Evaluation Study for Proposed Copperas Disposal, 5/1/79. P. 100270-100273. Two maps of the proposed site are attached.
13. Letter to Mr. Robert H. Forman, Virginia State Department of Health, from Mr. Tedd Jett Virginia Water Control Board, re: Transmittal of two copies of the application by Geonics for a permit on a proposed disposal site, 8/5/79. P. 100274-100288. The following are attached:
 - a) a letter regarding the evaluation of the proposed copperas disposal site;
 - b) a site evaluation form;
 - c) a application for a permit to operate a solid waste disposal site;
 - d) a letter regarding the site evaluation study;
 - e) two site maps.
14. Letter to Mr. H.A. Williams, U.S. Titanium Corp [sic] from Mr. William F. Gilley, re: Burial waste material permit, 3/11/80. P. 100289-100298. The following are attached:
 - a) a memorandum regarding the copy of the permit certificate;
 - b) a recommendation for the permit to be issued;
 - c) a letter regarding the need for monitoring wells and fertilizers at the proposed site;
 - d) a copy of the Application For A Permit to operate a solid waste disposal system;

- e) a letter regarding the proposed plan of disposal.
15. Letter to Mr. John Drew, U.S. Titanium, from Mr. Fred Fox, Geonics, re: Installation of two monitor wells and excavation of a test cell and burial of copperas, 5/13/80. P. 100299-100301. A site map is attached.
 16. Letter to Mr. John Drew, U.S. Titanium, from Mr. Fred Fox, Geonics, re: Completion of test cell, 6/2/80. P. 100302-100303.
 17. Letter to Mr. William F. Gilley, Virginia Division of Solid and Hazardous Waste Management, and Mr. Robert Forman, Commonwealth of Virginia, from Mr. Stephen C. Martin, re: Residents' concern of copperas burial, 7/25/80. P. 100304-100305.
 18. Letter to Mr. John Drew, Mason, Drew & Dragat, from Mr. Stephen C. Martin, re: Public concerns for proper copperas burial, 8/8/80. P. 100306-100308.
 19. Letter to Mr. Fred L. Fox, Geonics, from Mr. Tedd H. Jett, Virginia State Water Control, re: Routine monitoring at the Copperas burial site, 10/30/80. P. 100309-100310.
 20. Report: A Preliminary Assessment of U.S. Titanium, prepared by Ecology and Environment, Inc., 11/30/80. P. 100311-100348.
 21. Memorandum to File, from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Summary of the U.S. Titanium Corporation project, 11/12/80. P. 100349-100352.
 22. Letter to Mr. John Drew, Mason, Drew & Dragat, from Mr. Fred L. Fox, Geonics, re: Leveling and removal of Copperas and calculating costs, 11/17/80. P. 100353-100353.
 23. Letter to Mr. Fred L. Fox, Geonics, from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Geonics proposed course of action, 11/25/80. P.

100354-100357.

24. Memorandum to Mr. W.F. Gilley, Virginia Department of Health from Mr. Robert Forman, Virginia Department of Health, re: Weekly and bi-weekly inspections, 2/20/81. P. 100358-100361. Two site maps are attached.
25. Report: Fish Kill Report/Notification, prepared by the Virginia State Water Control Board, 5/22/81. P. 100362-100378. The following are attached:
 - a) a memorandum regarding the fish killed;
 - b) a Replacement Cost of Fish Summary;
 - c) a Total Cost Summary;
 - d) a laboratory costs form;
 - e) a memorandum regarding the fish kill complaint;
 - f) a summary of fish;
 - g) four area maps;
 - h) a statement on the fish kill;
 - i) four expense reports.
26. Report: Fish Kill Report/Notification, prepared by the Virginia State Water Control Board, 6/23/81. P. 100379-100397.
27. Report: Field Trip Summary Report, prepared by U.S. EPA, 7/81. P. 100398-100408. A Preliminary Assessment is attached.
28. Memorandum to Mr. Walter Gulevich, Virginia Department of Health, from Mr. Robert H. Forman, Virginia Department of Health, re: Investigation of leachate problems, 9/9/81. P. 100409-100409.
29. Letter to Mr. R. Bradley Chewning, Virginia State

Water Control Board, from Mr. Robert Murphy, Nelson County Board of Supervisors, re: Resolution by Nelson County urging proper action maintenance of Copperas burial site, 11/13/81. P. 100410-100412. The resolution is attached.

30. Letter to Mr. Robert M. Murphy, Nelson County Board of Supervisors, from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Results of well monitoring, 12/16/81. P. 100413-100421. The following are attached:
 - a) a map of the site showing monitoring wells;
 - b) the chemical analysis reports for well #1, 5, 6A, 7A;
 - c) the chemical analysis reports for Piney River #1 and #2.
31. Report: Proposal for Establishing an Vegetative Cover Critical Eroding Area, prepared by U.S.D.A. [sic] Soil Conservation Service, 3/82. P. 100422-100426.
32. Letter to Mr. Tedd H. Jett, from Mr. Mark H. Kroenig, Envirodyne Engineers, re: Transmittal of a paper on scientific methods in industrial waste disposal projects, 5/13/82. P. 100427-100449. The paper is attached.
33. Letter to Mr. Ted [sic] Jett, Virginia Water Control Board, from Mr. Gerald D. McCart, Virginia Cooperative Extension Service, re: Recommendations based on sludge analysis, 5/19/82. P. 100450-100453. The sample analysis results are attached.
34. Letter to Mr. Ted [sic] Jett, Virginia Water Control Board, from Mr. G.C. McCart, Virginia Cooperative Extension Service, re: Transmittal of soil test results, 5/26/82. P. 200454-100457. The Soil Test Reports for Samples HST 1, HST 2, HST 3, HST 4, HST 5, HST 6, HST 7, HST 8, HST 9, HST 10, HST 11, HST 12, and HST 13 are attached.

35. Memorandum to Mr. Howard Wilson, U.S. EPA, from Mr. H. Ronald Peterson, U.S. EPA, re: Transmittal of the results of metal analyses, 8/23/82. P. 100458-100471. The following are attached:
- a) a Chain of Custody Record;
 - b) a Federal Express receipt;
 - c) a Routing and Transmittal Slip;
 - d) a sample tag;
 - e) the Analysis Request and Result Forms for Sample Numbers UST-W2, UST-W5, UST-W6, UST-W8, UST-R2, UST-R1, UST-L1, UST-W7, and UST Blank: W8.
36. Memorandum to Mr. Ron Preston, U.S. EPA, from Mr. Howard Wilson, U.S. EPA, re: Request for metals analyses of two sediment samples, 8/25/82. P. 100472-100477. The following are attached:
- a) the Analysis Request and Result Forms for Samples UST-S5 and UST-S3;
 - b) a memorandum regarding the transmittal of sample metals analysis results;
 - c) the Analysis Request and Result Forms for Samples UST-S-3 and UST S-5.
37. U.S. EPA Site Inspection Report, 8/25/82. P. 100478-100487.
38. Letter to Mr. Frank J. Quirus, Ecology & Environment, Inc., from Mr. K. R. Hinkle, Virginia State Water Control Board, re: Transmittal of information on depth to bedrock at the U.S. Titanium Site, 8/22. P. 100488-100490. The monitoring well

data is attached.

39. Memorandum to Ms. Janet E. Roberson, U.S. EPA, from Mr. H. Ronald Preston, U.S. EPA, re: Transmittal of the results of metals analyses, 9/8/82. P. 100491-100506. The following are attached:
 - a) a letter regarding request for additional quantitative metals analyses;
 - b) the Analysis Request and Result Forms for Sample Numbers UST-S5, UST-S3, UST-S-3, UST-S-5, UST-W2, UST-W5, UST-W6, UST-W8, UST-R2, UST-R1, UST-L1, UST-L2, UST-W7, and UST Blank: W8.
40. Memorandum to File from Mr. Howard O. Wilson, U.S. EPA, re: Lagoon sediment samples, 9/23/82. P. 100507-100512. A Case History-Land Application/Treatment of Residue Produced in the manufacture of Titanium Dioxide is attached.
41. Handwritten cover page re: Sample Traffic Reports, 11/10/82. P. 100513-100534. The Inorganics Traffic Reports for Sample Numbers MC 9630, MC 9631, MC 9632, MC 9633, MC 9634, MC 9635, MC 9446, MC 9648, MC 9649, MC 9650, MC 9651, MC 9652, MC 9653, MC 9654, MC 9655, MC 9656, MC 9657, MC 9658, and MC 9662 and two Chain of Custody Records are attached.
42. Report: Boring Logs, (no author cited), 11/16/82. P. 100535-100541.
43. Report: Site Inspection Report: U.S. Titanium Property, Piney River, Virginia, prepared by Mr. Howard O. Wilson, Mr. George H. Houghton, and Mr. Eric Johnson, U.S. EPA, 11/19/82. P. 100542-100576.
44. Handwritten site diagram, U.S. Titanium Site, Piney River, Virginia, 11/29/82. P. 100577-100712. The following are attached:

- a) a Monitoring Well Physical Data Table;
 - b) the results of groundwater sampling;
 - c) the graphical representations of groundwater quality results;
 - d) a table showing ph versus Depth of hand Augering;
 - e) an analysis of sedimentation pond material;
 - f) a boring log;
 - g) an analysis of leachates and auger hole water;
 - h) the soil testing results;
 - i) the effluent analysis from permeability testing;
 - j) the site drainage and Piney River water quality data;
 - k) a graphical representation of neutralization requirements for selected soil samples.
45. Report: Interim Report for U.S. Titanium, prepared by Mr. Douglas Taylor and Mr. Joseph G. McGovern, Ecology and Environment, Inc., 12/10/82. P. 100713-100825.
46. Letter to Dr. Malcolm Tenney, Jr., from Mr. R. Bradley Chewning, Virginia State Water Control Board, re: Transmittal of the draft Site Inspection Report for the U.S. Titanium Site, 1/4/83. P. 100826-100861. A letter regarding the draft Site Inspection Report and the report are attached.
47. Pesticide Analysis Data, 2/12/83. P. 100862-100882.
48. Report: Case Summary Quality Control Reports, prepared by WCTS, Inc., 2/24/83. P. 100883-101211.

The following are attached:

- a) a Chain of Custody Record;
- b) three quality control reports;
- c) a case review quality control reports summary of outliers;
- d) a cross reference table;
- e) a volatile internal standard areas sheet;
- f) a semivolatile internal standard areas sheet;
- g) a GC screen data sheet;
- h) the quality control reports for Sample Numbers: C2737, C2737MS, C2737MSD, C2745, C2745MS, C2745MSD, C2746, and C2747 M.B.;
- i) the organics analysis data sheets for blank samples;
- j) the volatile initial calibration data;
- k) an I.T. Analytical Services Quantitation Report for Sample: 50 UG/L 6582 VOA Screening Standard;
- l) an I.T. Analytical Services Quantitation Report for Sample: 25 UG/L 6582 VOA Screening Standard;
- m) an I.T. Analytical Services Quantitation Report for Sample: 2000 UG/L 6582 VOA Screening Standard;
- n) a mass list and mass spectrum for sample number 50 NG BFB;
- o) a VOA calibration check compounds sheet;
- p) two VOA standard check forms;

- q) an I.T. Analytical Services Quantitation Report, Sample: 50 UG/L 6582 VOA Screening Standard;
- r) a FSCC Initial Calibration Data;
- s) a GC/MS Performance Standard;
- t) a mass chromatograms, mass spectrums, and mass list for sample: Fused silica selectivity;
- u) a Quantitation Report for Sample: 50 UG/ML 6582 B/N/A/P Screening Standard;
- v) a Quantitation Report for Sample: 25 UG/ML 6582 B/N/A/P Screening Standard;
- w) a Quantitation Report for Sample: 100 UG/ML 6582 B/N/A/P Screening Standard;
- x) a Quantitation Report for Sample: 200 UG/ML 6582 BNA Screening Standard;
- y) a Quantitation Report for Sample: 200 UG/ML 6582 HAZ-P-B(K)FL Screening Standard;
- z) a GC /MS Performance Standard;
- aa) a mass chromatograms, mass spectrums, and mass list for sample: Fused silica selectivity;
- bb) a Quantitation Report for Sample: 50 UG/ML 6582 B/N/A/P Screening Standard;
- cc) eight I.T. Analytical Services Quantitation Reports for Sample Numbers Lab Blank, C2737, C2737 Matrix Spike, C2737 Duplicate Spike, C2745, C2746 (1:10 Dilution), C2747, and C2747 (1:100 Dilution);
- dd) seven Quantitation Reports for Sample Numbers Method Blank, C2737, C2745, C2745 Matrix Spike, C2745 Duplicate Spike, C2746,

and C2747;

ee) a Capillary Pesticides Data.

49. WCTS Sample Log-in Sheet-Waters for Sample Numbers C2737, C2745, C2746, and C2747, 2/25/83. P. 101212-101217. A description of laboratory procedures is attached.
50. GC Screen Data Sheet for Samples MB, C2737, C2745, C2746, and C2747, 2/26/83. P. 101218-101230. Test results of BNA screens are attached.
51. TCDD Raw Data Summary Sheet for Sample Numbers STANDARD, METHOD BLANK, C2737, C2737MS, C2737MSD, C2745, C2746, and C2747, 3/20/83. P. 101231-101247. A mid mass chromatograms and a mid mass spectrums are attached.
52. Report: Biological Monitoring Report, (no author cited), Virginia, 6/6/83. P. 101248-101260. A Draft Statement of Work for the Supplemental Remedial Investigation is attached.
53. Report: Site Inspection of U.S. Titanium, prepared by NUS Corporation, 7/27/83. P. 101261-101325. References are listed on P. 101324.
54. Report: A Toxicological Impact Assessment of U.S. Titanium Corporation Property, prepared by NUS Corporation, 8/11/83. P. 101326-101357.
55. Sample Data Summary: Target Compounds, Inorganic, for Sample Numbers MC-1653, MC-1654, MC-1655, MC-1656, MC-1657, MC-1658, MC-1659, MC-1660, MC-1661, MC-1662, MC-1663, and MC-1664, 11/9/83. P. 101358-101404. The following are attached:

a) a Sample Data Summary: Target Compounds,

Organic, for Sample Numbers C3409, C3410, C3411, C3412, C3413, C3414, C3415, C3416, C3417, C3418, C3419, and C3420;

- b) Organic Analysis Data Sheets for Sample Numbers C3409, C3410, C3411, C3412, C3413, C3414, C3415, C3416, C3417, C3418, C3419, and C3420;
- c) Quality Assurance Notices for Samples C3409, C3410, and C3420;
- d) Inorganics Analysis Data Sheets for Samples MC1653, MC1654, MC1655, MC1656, MC1657, MC1658, MC1659, MC1660, MC1661, MC1662, MC1663, and MC1664.

56. Report: A Study of The U.S. Titanium Site in Nelson County, Virginia, prepared by Virginia Polytechnic Institute & State University, 3/84. P. 101405-101438. References are listed on P. 101415.

57. Report: Evaluation of The Hazardous Waste Site at The U.S. Titanium Plant in Piney River, prepared by Mark S. Morris, Virginia Polytechnic Institute and State University, 7/84. P. 101439-101618. References are listed on P. 101521.

58. Memorandum to Mr. Daniel K. Donnelly, U.S. EPA, from Mr. Kirby K.F. Worthington, U.S. EPA, re: Transmittal of the results of energy dispersive X-ray fluorescence scans of samples, 8/16/84. P. 101619-101643. The following are attached:

- a) a memorandum regarding testing of samples for pesticides and/or PCBs;
 - b) the Analysis Request and Result Forms for Sample Numbers UST-W8, UST-S1, UST-S2, UST-R1, UST-R2, UST-01, UST-S3, UST-S4, UST-W5, UST-S6, UST-W2, UST-W6, UST-S5, UST-L2, UST-R01, and UST-W7;
 - c) three James River Basin Forms;
 - d) a Piney River Data Form;
- 59. Letter to Mr. Don Neal, GCA Inc., from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Background flow and water quality data, 8/28/84. P. 101644-101650. The following are attached:
 - a) a gage records for water years 1981-1983;
 - b) a letter regarding transmittal of the results of a cursory benthic survey;
 - c) two biological monitoring reports of the Piney River in Virginia.
- 60. Letter to Mr. Don Neal, GCA Inc., from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Transmittal of a qualitative biological survey report for the Piney River, 9/27/84. P. 101651-101663. The report is attached.
- 61. Letter to Ms. Carol Stokes, U.S. EPA, from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Transmittal of two Masters Theses written at Virginia Polytechnic Institute, 10/25/84. P. 101664-101797. The Thesis of Ms. Jaleh Moslehi is attached. References are listed on P. 101794-101796.
- 62. Memorandum to Mr. R.F. Tesh, from Mr. R.W. Bolgiano, Virginia State Water Control Board, re: A cursory benthic survey conducted on the Piney River,

6/27/85. P. 101798-101809. The Qualitative Benthic Survey, Piney River, Nelson County, James River Basin is attached.

63. Letter to Mr. James M. Seif, U.S. EPA, from Mr. W.R. Meyer, Virginia State Air Pollution Control Board, re: Request for an EPA Field Investigation Team at the U.S. Titanium Site, 10/10/85. P. 101810-101815. The following are attached:

- a) a letter regarding transmittal of sample analytical results;
- b) the analytical results for samples collected at Piney River Plant Site;
- c) a handwritten site diagram.

64. Report: A Field Trip Report for the U.S. Titanium Corporation, Draft, prepared by NUS Corporation, 2/19/86. P. 101816-102166.

65. Report: Review of Proposed Environmental Protection Agency (EPA) Study of the U.S. Titanium Site, Nelson County, Virginia, prepared by the U.S. Geological Survey, (undated). P. 102167-102173. References are listed on P. 102173.

66. Assorted handwritten notes on the U.S. Titanium Site, (undated). P. 102174-102177.

67. Inventory Sheet of U.S. Titanium, (undated). P. 102178-102220. The following are attached:

- a) a Technical Direction Document;
- b) a Technical Direction Document with a record of telephone call attached;
- c) a Dumpsite Summary Sheet;
- d) the handwritten notes regarding site burial work;
- e) a Preliminary Assessment of U.S. Titanium.

68. Inventory Sheet of U.S. Titanium, (undated).

P. 102221-102401. The following are attached:

- a) five Technical Direction Documents;
- b) a handwritten sampling plan for drilling activities;
- c) a Site Safety Plan for a site visit;
- d) a Site Safety Plan for well drilling and sampling;
- f) an equipment list;
- g) the boring logs for boring numbers B-1, 2, 3, B-4, and B-5;
- h) a Federal Express receipt;
- i) the Inorganics Traffic Reports for Sample Numbers MC 9446, MC 9630, MC 9631, MC 9632, MC 9633, MC 9634, MC 9635, MC 9648, MC 9649, MC 9650, MC 9651, MC 9652, MC 9653, MC 9654, MC 9655, MC 9656, MC 9657, MC 9658, and MC 9662;
- j) two Chain of Custody Records;
- k) a Regional Internal Distribution List;
- l) a letter regarding the transmittal of subcontract documents;
- m) an Agreement between Ecology and Environment, Inc. and Girdler Foundation & Exploration Company;
- n) a memorandum regarding verification of an attached invoice;
- o) an invoice from Girdler Foundation & Exploration Co. for monitoring well installation;
- p) a memorandum regarding EPA subcontract approval;

- q) a Request for FIT subcontract approval;
- r) a memorandum regarding the selection of a drilling subcontractor;
- s) a memorandum regarding the selection and recommendation of a subcontractor;
- t) a Regional Internal Distribution List;
- u) a memorandum regarding the selection of a subcontractor and changes in the Scope of Work;
- v) a memorandum regarding changes in the Scope of Work;
- w) a letter regarding the transmittal of test borings logs;
- x) five Test Hole Logs;
- y) a letter regarding additional monitoring wells;
- z) a letter regarding the diameter of the proposed monitoring wells;
- aa) a letter regarding additional information on existing wells;
- bb) a letter regarding funding and specifications of the monitoring wells;
- cc) a map of the Piney River, Virginia, area;
- dd) a handwritten site sketch;
- ee) a letter regarding the transmittal of background information;
- ff) the physical data for monitoring wells;
- gg) the soil sampling data;
- hh) the ground water monitoring data;

- ii) two letters regarding the transmittal of monitoring well information;
- jj) a price quotation sheet from Falwell Well Corporation;
- kk) a site map;
- ll) a letter regarding a site evaluation study of the proposed copperas disposal;
- mm) a map of the Piney River, Virginia, area;
- nn) a handwritten site sketch;
- oo) a letter regarding the preliminary evaluation of the proposed copperas disposal area;
- pp) five site sketches;
- qq) handwritten field notes;
- rr) a map of flood prone areas near Piney River;
- ss) a Chain of Custody Record;
- tt) a request from Regional FIT for NPMO/EPA approval;
- uu) a memorandum regarding the transmittal of data on the proposed subcontract;
- vv) a memorandum regarding the transmittal of four Technical Direction Documents.

II. REMEDIAL ENFORCEMENT PLANNING

1. Chart: Acid Recovery Plant Production Calculations Based on Analysis of Grab Samples, prepared by Mr. Stephen A. Lamanna, 2/5/48. P. 200001-200001.
2. Report: Acid Recovery Pilot Plant, prepared by Mr. Stephen A. Lamanna, 3/14/49. P. 200002-200038.
3. Memorandum to Mr. J.F. Hopkins, American Cyanamid Company, from Mr. Stephen A. Lamanna, re: Production cost estimate, Hydrated Yellow Iron Oxide "Hyferox", 1/26/65. P. 200039-200045. The Production and Cost Report are attached.
4. Letter to Mr. E. Hladky from Mr. Stephen A. Lamanna, re: Piney River Copperas-Acid Recovery, 8/23/67. P. 200046-200047.
5. Memorandum to Mr. J.F. Hopkins, Piney River Office, from Mr. Stephen A. Lamanna, re: Waste acid recovery, 8/20/68. P. 200048-200051. Two flow charts are attached.
6. Report: End Liquor Concentration Acid Recovery Operating Procedure Volume XI, prepared by Mr. Stephen A. Lamanna, Plant Chemical Engineer, American Cyanamid Company, 3/69. P. 200052-200079.
7. Memorandum to Mr. John B. Baer from Mr. Stephen A. Lamanna, re: Production of copperas, 5/8/69. P. 200080-200081. A Copperas Table is attached.
8. Memorandum to Mr. J.F. Hopkins, from Mr. Stephen A. Lamanna, re: Waste acid recovery Savannah Plant, 10/2/69. P. 200082-200086. The technical details, an end liquor (waste acid) analysis, and a flow chart for the Savannah Plant are attached.
9. Memorandum to Mr. S.A. Lamanna, Piney River Office, from Mr. Richard L. Bennett, re: Dilution of 98% H_2SO_4 with recovered Acid to form 93% Acid, 1/9/70. P. 200087-200088. A flow chart of the dilution process is attached.

10. Memorandum to Mr. S.A. Lamanna, Piney River Plant, from Mr. Richard L. Bennett American Cyanamid Company, re: Waste Acid Recovery Plant, 3/20/70. P. 200089-200090.
A flow chart of a proposed pilot plant is attached.
11. Letter to Mr. J.J. Fitzgerald from Mr. J.F. Hopkins, re: Waste Acid Recovery and Neutralization, 4/29/70. P. 200091-200096. A comparison of capital costs and profit or loss for alternatives at the Piney River Plant is attached.
12. Memorandum to Mr. J.F. Hopkins from Mr. Stephen A. Lamanna, re: Waste Acid Neutralization, 7/28/70. P. 200097-200098. A flow chart of a design of a waste acid neutralization plant is attached.
13. Memorandum to Mr. J. Smodish, Mr. F.J. Stamm, and Mr. J.B. Baer from Mr. Stephen A. Lamanna, re: Copperas analysis, 9/10/70. P. 200099-200099.
14. Memorandum to Mr. Fred Stamm from Mr. Stephen A. Lamanna, re: Copperas Solution, 4/22/71. P. 200100-200102. A Specific Gravity - FeSO_4 chart and a handwritten table are attached.
15. Map: Copperas Dump Contour Map. P. 200103-200103.
16. Memorandum to Mr. J.F. Hopkins, Piney River Office, from Mr. Stephen A. Lamanna, re: Copperas "Dump", 4/29/71. P. 200104-200107. A drill sample analysis table, an X-ray diffraction analysis table, and a contour map are attached.
17. Letter to Mr. J.F. Hopkins, from Mr. W.R. Whately, re: Copperas Pile Effluent, 3/9/72. P. 200108-200108.
18. Memorandum to Mr. V.P. Langone, American Cyanamid Company, from Mr. R.N. Kelly, American Cyanamid Company re: Copperas Status Report and a September 9, 1972 phone request, 8/17/72. P. 200109-200111. A letter regarding a phone conversation on dry copperas is attached.

19. Letter to Mr. Jim Heenehan, U.S. EPA, from Ms. Marie C. Shultie, Delaware Department of State, re: United States Titanium Company, 6/3/82. P. 200112-200113. A list of officers, directors, and registered agents is attached.
20. Letter to Mr. Edward R. Parker, American Cyanamid Company, from Mr. Thomas C. Voltaggio, U.S. EPA, re: Request for all documents relating to wastes generated by American Cyanamid Company, 1/7/83. P. 200114-200117. Two certified mail receipts are attached.
21. Letter to Mr. Ronald Penque from Mr. Thomas C. Voltaggio, U.S. EPA, re: Request of all documents relating to wastes generated by American Cyanamid Company, 1/7/83. P. 200118-200121. Two certified mail receipts are attached.
22. Letter to Mr. Paul Turner, Christian, Barton, Epps, Bunt and Chappell, from Mr. Thomas C. Voltaggio, U.S. EPA, re: Request for all documents relating to waste generated by American Cyanamid Company, 1/7/83. P. 200122-200125. Two certified mail receipts are attached.
23. Letter to Mr. S. Vance Wilkens from Mr. Thomas C. Voltaggio, U.S. EPA, re: Request for all documents relating to wastes generated by American Cyanamid Company, 1/7/83. P. 200126-200129. Two certified mail receipts are attached.
24. Letter to Mr. Henry A. Williams, II from Mr. Thomas C. Voltaggio, U.S. EPA, re: Request for all documents relating to wastes generated by American Cyanamid Company, 1/7/83. P. 200130-200133. Two certified mail receipts are attached.
25. Letter to Mr. James Heenehan, U.S. EPA, from Mr. Paul G. Turner, re: United States Titanium Corporation Request for Documents, 1/20/83. P. 200134-200136. An envelope is attached.
26. Letter to Mr. James Heenehan, U.S. EPA, from Ms. Margaret R. Tribble, American Cyanamid Company, re:

Virginia Request for Documents, 3/2/83. P. 200137-200137.

27. Letter to Mr. James Heenehan, U.S. EPA, from Ms. Margaret R. Tribble, American Cyanamid Company, re: Virginia Request for Documents, 3/2/83. P. 200138-200138.
28. Letter to Mr. Russell H. Wyer, U.S. EPA, from Ms. Margeret R. Tribble, American Cyanamid Company, re: Virginia Amendment to National Contingency Plan, 3/7/83. P. 200139-200149. A monitoring well analysis, a monitoring well analytical variability table, and a mitre model groundwater worksheet are attached.
29. Letter to Mr. Paul Turner, Christian, Barton, Epps, Bunt and Chappell, from Mr. Stephen R. Wassersug, U.S. EPA, re: Notification of action which EPA believes should be performed at U.S. Titanium Site, 7/1/83. P. 200150-200154. Two certified mail receipts are attached.
30. Letter to Mr. Ronald Penque from Mr. Stephen R. Wassersug, U.S. EPA, re: Notice of Corrective Action needed at U.S. Titanium Site, 7/5/83. P. 200155-200159. Two certified mail receipts are attached.
31. Letter to Mr. S. Vance Wilkens from Mr. Stephen R. Wassersug, U.S. EPA, re: Notice of Corrective Action needed at U.S. Titanium Site, 7/5/83. P. 200160-200164. Two certified mail receipts are attached.
32. Letter to Mr. Henry A. Williams, III, Penque-Williams, Inc., from Mr. Stephen R. Wassersug, U.S. EPA, re: Notice of corrective action needed at U.S. Titanium Site, 7/5/83. P. 200165-200169. Two certified mail receipts are attached.
33. Letter to Mr. Edward R. Parker, American Cyanamid Company, from Mr. Stephen R. Wassersug, U.S. EPA, re: Notice of Corrective Action needed at U.S. Titanium Site, 7/7/83. P. 200170-200174. Two certified mail receipts are attached.

34. Letter to Mr. Eric W. Johnson, U.S. EPA, from Mr. Henry A. Williams, III, re: Penque-Williams interest in U.S. Titanium Site, 7/9/83. P. 200175-200175.
35. Letter to Mr. Eric W. Johnson, U.S. EPA, from Mr. Paul G. Turner, Christian, Barton, Epps Bunt and Chappell, re: United States Titanium Site in Nelson and Amherst Counties, Virginia, 7/26/83. P. 200176-200178. An envelope is attached.
36. Letter to Mr. Eric W. Johnson, U.S. EPA, from Mr. Robert C. Wood, III, Edmunds & Williams, re: S. Vance Wilken's liability with regard to U.S. Titanium Site, 7/29/83. P. 200179-200180.
37. Letter to Mr. Eric W. Johnson, U.S. EPA, from Ms. Margaret R. Tribble, American Cyanamid Company, re: Corrective action at U.S. Titanium Site, Piney River, Virginia, 8/3/83. P. 200181-200181.
38. Letter to Mr. Robert E. Desmond from Mr. Stephen R. Wassersug, U.S. EPA, re: Potentially responsible party for release or threatened release of hazardous substances at U.S. Titanium Site, 10/4/85. P. 200182-200186. Two certified mail receipts are attached.
39. Letter to Mr. Barry L. Malter, Holland & Knight, from Mr. Stephen R. Wassersug, U.S. EPA, re: Potential responsible party for release or threatened release or threatened release of hazardous substances at U.S. Titanium Site, 10/4/85. P. 200187-200191. Two certified mail receipts are attached.
40. Letter to Mr. Ronald Penque from Mr. Stephen R. Wassersug, U.S. EPA, re: Potential responsible party for release or threatened release of hazardous substances at U.S. Titanium Site, 10/4/85. P. 200192-200196. Two certified mail receipts are attached.

41. Letter to Mr. Paul Turner, Christian, Barton, Epps, Bunt and Chappell, from Mr. Stephen R. Wassersug, U.S. EPA, re: Clients are potential responsible parties for release or threatened release of hazardous substances at U.S. Titanium Site, 10/4/85. P. 200197-200201. Two certified mail receipts are attached.
42. Letter to Mr. S. Vance Wilkens from Mr. Stephen R. Wassersug, U.S. EPA, re: Potential responsible party for release or threatened release of hazardous substance at U.S. Titanium Site, 10/4/85. P. 200202-200206. Two certified mail receipts are attached.
43. Letter to Mr. Henry A. Williams, III, Penque-Williams, Inc., from Mr. Stephen R. Wassersug, U.S. EPA, re: Potential responsible party for release or threatened release of hazardous substance at U.S. Titanium Site, 10/4/85. P. 200207-200211. Two certified mail receipts are attached.
44. Letter to Mr. Robert E. Desmond from Mr. James Heenehan, U.S. EPA, re: Postponement of PRP meeting, 10/11/85. P. 200212-200212.
45. Letter to Mr. Ronald Penque from Mr. James Heenehan, U.S. EPA, re: Postponement of PRP meeting, 10/11/85. P. 200213-200213.
46. Letter to Mr. S. Vance Wilkens from Mr. James Heenehan, U.S. EPA, re: Postponement of PRP meeting, 10/11/85. P. 200214-200214.
47. Letter to Mr. Robert Wood, Evans & Williams, from Mr. James Heenehan, U.S. EPA, re: Postponement of PRP meeting, 10/11/85. P. 200215-200215.
48. Letter to Mr. Barry L. Malter, Holland & Knight, from Mr. James Heenehan, U.S. EPA, re: Postponement of PRP meeting, 10/11/85. P. 200216-200216.
49. Letter to Mr. Paul Turner, Christian, Barton, Epps, Bunt and Chappell, from Mr. James Heenehan, U.S. EPA, re: Postponement of PRP meeting, 10/11/85. P. 200217-200217.

50. Letter to Mr. Henry A. Williams, III, Penque-Williams, Inc., from Mr. James Heenehan, U.S. EPA, re: Postponement of PRP meeting, 10/11/85. P. 200218-200218.
51. Flow Chart: Acid Concentrators - 2 Stage, (undated). P. 200219-200219.
52. Chart: Solubility of FeSO₄ in Water and Acid-Solubility of FeCl₂ in Water, (undated). P. 200220-200220.
53. Letter to Mr. Thomas C. Voltaggio, U.S. EPA, from Mr. Henry A. Williams, III, re: Documents pertaining to U.S. Titanium Site, (undated). P. 200221-200221.
54. Letter to Mr. Eric W. Johnson, U.S. EPA, from Mr. John Butcher, Commonwealth of Virginia, re: Transmittal of data generated in U.S. Titanium Site, 2/29/84. P. 200222-200353. The following are attached:
- a) the results of the Groundwater Sampling;
 - b) a graphical Representation of Groundwater Quality Results;
 - c) the data of ph versus Depth of Hand Augering;
 - d) the Analysis of Sedimentation Pond Material;
 - e) fifteen boring logs;
 - f) the analysis of leachates and Auger Hole Water;
 - g) the soil testing results;

- h) the Effluent Analysis from Permeability Testing;
 - i) the site drainage and Piney River Water Quality Data;
 - j) the Neutralization Requirements for Selected Soil Samples.
55. Letter to Mr. James T. Heenehan, U.S. EPA and Mr. John R. Butcher, Commonwealth of Virginia, from Mr. Barry Malter, Breed, Abbott & Morgan, re: Comments on the Focused Feasibility Study, 12/16/85. P. 200354-200357.
56. Letter to Mr. Barry Malter, Breed, Abbott & Morgan, from Mr. John Butcher, Commonwealth of Virginia, re: Response and comments to the December 6, 1985 letter of Mr. James Heenehan, 12/19/85. P. 200358-200360.
57. Letter to Mr. Jerome Muys, Breed, Abbott & Morgan, from Mr. John Butcher, Commonwealth of Virginia, re: Draft Statement of Work for the measures that American Cyanamid Company proposes, 2/27/86. P. 200361-200365. A cover sheet and a letter regarding comments on the Draft statements of work are attached.
58. Letter to Mr. John Butcher, Assistant Attorney General, from Mr. John Novak, Virginia Polytechnic Institute and State University, re: Current Study of Water at Piney River, 2/26/86. P. 200366-200367. The sampling data is attached.
59. Stipulation and Order In The Matter of Virginia for Commonwealth of Virginia v. United States Titanium Corporation, 5/9/86. P. 200368-200377.
60. Letter to Mr. Philip Koren, Commonwealth of Virginia, from Mr. Jerome Muys, Swidler & Berlin, re: Hydrosystem's submittal of addendum to the Feasibility Study, 7/17/89. P. 200378-200379.
61. Letter to Dr. Tim Longe, Virginia Department of Waste Management, from Mr. Jeffrey Sitler, Hydrosystems, Inc., re: Transmittal of Addendum to

the Feasibility Study, 7/18/89. P. 200380-200392.
The Addendum is attached.

62. Letter to Mr. Jon Horin, Virginia Department of Waste Management, from Mr. Thomas Voltaggio, U.S. EPA, re: Preferred Alternatives of the Proposed Plan, 7/24/89. P. 200393-200394.
63. Trial Memorandum In The Matter of Commonwealth of Virginia v. United States Titanium, (undated). P. 200395-200443.
64. Bill of Complaint In The Matter of Commonwealth of Virginia, vs. United States Titanium Corporation, American Cyanamid Company, Penque-Williams, Inc., (undated). P. 200444-200453.

III. REMEDIAL RESPONSE PLANNING

1. Report: Evaluation of Ferrous Sulfate Disposal Site at Piney River, Virginia, prepared by Mr. John T. Novak, Virginia Polytechnic Institute and State University, 12/29/82. P. 300001-300028.
2. Report: Remedial Action Master Plan, U.S. Titanium Site, Nelson and Amherst Counties, Virginia, prepared by NUS Corporation, 8/83. P. 300029-300175. References are listed on P. 300117-300128.
3. Letter to Mr. Gene Lucero, U.S. EPA, from Mr. Bruce Blanchard, U.S. Department of the Interior, re: Preliminary natural resources survey of the U.S. Titanium Site, 1/4/84. P. 300176-300176.
4. Memorandum to Mr. Pablo Huidoboro, Mr. Robert Hall, Mr. Michael Jazinski, and Mr. Steve Konieczny from Mr. David Coglay, re: Leachate from Ferrous Sulfate Waste Piles, 1/29/85. P. 300177-300178.
5. Report: Addendum to the Endangerment Assessment/ Feasibility Study: U.S. Titanium Site, Piney River, Virginia, prepared by GCA Corporation, 9/85. P. 300179-300255. References are listed on P. 300246.
6. Letter to Ms. Carol E. Stokes, U.S. EPA, from Mr. Robert C. Wood, III, Edmunds & Williams, re: U.S. Titanium Site meeting of October 30, 1985, 10/23/85. P. 300256-300257. An envelope is attached.
7. Report: Focused Feasibility Study for the U.S. Titanium Site, prepared by PRC Engineering, 10/24/85. P. 300258-300269.
8. Letter to Ms. Carol Stokes, U.S. EPA, from Mr. Barry L. Malter, Holland & Knight, re: Comments of American Cyanamid Company on the Endangerment Assessment/ Feasibility Study, 11/26/85. P. 300270-300280.
9. Report: Evaluation of Neutralization Requirements for the U.S. Titanium Site, Piney River, Virginia,

prepared by PRC Engineering, 1/86. P. 300281-300307.

10. Letter to Mr. James T. Heenehan, U.S. EPA, and Mr. John R. Butcher, Commonwealth of Virginia, from Mr. Lyle R. Silka, Hydrosystems Inc., re: Proposed locations for additional monitoring wells, 1/13/86. P. 300308-300313.
11. Letter to Mr. Joel Jerome, American Cyanamid Company, from Ms. Carol Stokes, U.S. EPA, re: Comments on American Cyanamid's site proposed, 1/22/86. P. 300314-300315.
12. Report: Schedule for Additional Studies at the U.S. Titanium Site in Piney River, Virginia, 1/28/86. P. 300316-300318.
13. Letter to Mr. John R. Butcher, Commonwealth of Virginia, from Mr. Jerome C. Muys, Jr., Breed, Abbott & Morgan, re: American Cyanamid Company's Draft Statement of Work, 2/19/86. P. 300319-300330. The Draft Statement of Work is attached.
14. Letter to Mr. Jerome C. Muys, Jr., Breed, Abbot & Morgan, from Mr. John R. Butcher, Commonwealth of Virginia, re: Response to American Cyanamid Company's site proposal, 2/27/86. P. 300331-300335. A cover sheet and a letter regarding the Draft statements of work are attached.
15. Report: Focused Feasibility Study for the U.S. Titanium Site, prepared by PRC Engineering, 3/5/86. P. 300336-300349.
16. Letter to Mr. Jerome C. Muys, Breed, Abbott & Morgan, from Ms. Carol Stokes, U.S. EPA, re: Proposed measures to be undertaken by American Cyanamid, 3/31/86. P. 300350-300359. The following are attached:

a) a letter regarding groundwater tables;

- b) an analysis of water in contact with grey material;
 - c) a letter regarding comments on the States Draft Consent Decree;
 - d) a Site Boring Map.
17. Report: Endangerment Assessment/Feasibility Study: U.S. Titanium Site, Piney River, Virginia, prepared by GCA Corporation, 4/86. P. 300360-300771.
 18. Report: Statement of Work, Supplement Remedial Investigation at the U.S. Titanium Site, Piney River Virginia, prepared by Hydrosystems, Inc., 4/24/86. P. 300772-300794.
 19. Report: Work Plan for the Supplemental Remedial Investigation at the U.S. Titanium Site, Piney River, Virginia, Revision No. 3, prepared by Hydrosystems, Inc., 9/12/86. P. 300795-300963. References are listed on P. 300854-300855.
 20. Letter to Mr. Joel Jerome, American Cyanamid Company, from Mr. John R. Butcher, Commonwealth of Virginia, re: Conditional approval of the American Cyanamid Company work plan, 12/24/86. P. 300964-300968. A letter regarding EPA concerns about the work plan is attached.
 21. Memorandum to Mr. R.F. Tesh, Virginia Water Control Board, from Mr. R.W. Bolgiano, Virginia Water Control Board, re: Transmittal of the U.S. Titanium/Piney River Benthic Survey, 1/8/87. P. 300969-300979. The survey is attached.
 22. Report: Work Plan for the Supplemental Investigation at the U.S. Titanium Site, Piney River, Virginia, Revision No. 2, Addendum No. 1, prepared by Hydrosystems, Inc., 1/9/87. P. 300980-301016.
 23. Letter to Mr. Tedd Jett, Virginia Water Control Board, from Mr. Dennis P. Carney, U.S. EPA, re: U.S. Titanium Site, Supplementary Remedial

Investigation (SRI) Workplan, Revision No. 2,
Addendum No. 1, 2/25/87. P. 301017-301019.

24. Letter to Mr. Michael Bass, U.S. EPA, from Mr. Lyle R. Silka, Hydrosystems, Inc., re: EPA comments on the Supplementary Remedial Investigation Work Plan, 4/10/87. P. 301020-301024. A letter concerning the work plan is attached.
25. Report: Supplemental Remedial Investigation, U.S. Titanium Site, Piney River, Virginia, Volume 1 of 5, prepared by Hydrosystems, Inc., 9/17/87. P. 301025-301055.
26. Report: Supplemental Remedial Investigation, U.S. Titanium Site, Piney River, Virginia, Volume 2 of 5, prepared by Hydrosystems, Inc., 9/17/87. P. 301056-301287.
27. Report: Supplemental Remedial Investigation, U.S. Titanium Site, Piney River, Virginia, Appendixes A - G, Volume 4 of 5, prepared by Hydrosystems, Inc., 9/17/87. P. 301288-301449.
28. Report: Supplemental Remedial Investigation, U.S. Titanium Site, Piney River, Virginia, Appendixes H - Z, Volume 5 of 5, prepared by Hydrosystems, Inc., 9/17/87. P. 301450-301591.
29. Letter to Dr. James R. Miller, U.S. EPA, from Mr. Paul A. Hughes, Alliance Technologies Corporation, re: Comments on the Supplemental Remedial Investigation, 10/5/87. P. 301592-301615. The Comments are attached.
30. Letter to Mr. James Miller, U.S. EPA, from Mr. William B. Schmidt, U.S. Department of the Interior, re: Comments on the proposed Feasibility Study Work Plan, 11/5/87. P. 301616-301655. A Mine Water Research Report is attached.
31. Letter to Mr. Joel Jerome, American Cyanamid Company, from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Draft Supplemental Remedial Investigation Report, 11/25/87. P. 301656-301668. The Comments are attached.

32. Letter to Mr. Garth Conner, U.S. EPA, from Mr. William B. Schmidt, U.S. Department of the Interior, re: Comments on the Supplemental Remedial Investigation Report, 12/1/87. P. 301669-301672.
33. Letter to Mr. Joel Jerome, American Cyanamid Company, from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Draft Feasibility Study Work Plan, 12/7/87. P. 301673-301677. A letter regarding a study of Piney River and a sketch of groundwork profile at the tailing pond are attached.
34. Letter to Mr. Lyle R. Silka, Hydrosystems, Inc., from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Transmittal of a letter report summarizing the findings at site, 12/18/87. P. 301678-301678.
35. Report: Feasibility Study Work Plan, U.S. Titanium Site, Piney River, Virginia, prepared by Hydrosystems, Inc., 1/15/88. P. 301679-301697.
36. Report: Response to Comments Submitted by the Commonwealth of Virginia and the U.S. Environmental Protection Plan for the U.S. Titanium Site, prepared by Hydrosystems, Inc., 1/15/88. P. 301698-301704.
37. Report: Response to Comments Submitted by the Commonwealth of Virginia Concerning the Supplemental Remedial Investigation of the U.S. Titanium Site, prepared by Hydrosystems, Inc., 1/15/88. P. 301705-301709.
38. Report: Response to Comments Submitted by the U.S. Environmental Protection Agency Concerning the Supplemental Remedial Investigation of the U.S. Titanium Site, prepared by Hydrosystems, Inc., 1/15/88. P. 301710-301742.
39. Letter to Mr. John R. Butcher, Commonwealth of Virginia, from Mr. Jerome C. Muys, Jr., Breed, Abbot & Morgan, re: Revised Feasibility Study Work Plan, 1/18/88. P. 301743-301744.
40. Memorandum to Mr. Richard N. Burton, Virginia Department of Waste Management, from Ms. Cynthia V.

Bailey, Virginia Department of Waste Management, re: Notification of Department of Waste Management's assumption of lead agency for the site clean-up, 1/21/88. P. 301745-301745.

41. Memorandum to Ms. Cynthia V. Bailey, Virginia State Water Control Board, from Mr. Richard N. Burton, Virginia State Waste Control Board, re: Concurrence on Department of Waste Management's assumption of lead agency for the site, 3/7/88. P. 301746-301746.
42. Memorandum to Mr. R.F. Tesh, Virginia Water Control Board, from Mr. R.W. Bolgiano, Virginia Water Control Board, re: Transmittal of the Spring 1988 Biological Monitoring Results, 6/2/88. P. 301747-301750.
43. Letter to Mr. Joel Jerome, American Cyanamid Company, from Mr. Richard N. Burton, Virginia State Water Control Board, re: Revised Feasibility Study Work Plan, 6/15/88. P. 301751-301752.
44. Report: Volume 1 of 3, Feasibility Study, U.S. Titanium Site, Piney River, Virginia, Executive Summary, prepared by Hydrosystems, Inc., 11/10/88. P. 301753-301773.
45. Report: Volume 2 of 3, Feasibility Study, U.S. Titanium Site, Piney River, Virginia, prepared by Hydrosystems, Inc., 11/10/88. P. 301774-301909.
46. Report: Volume 3 of 3, Feasibility Study, U.S. Titanium Site, Piney River, Virginia, prepared by Hydrosystems, Inc. 11/10/88. P. 301910-302107. References are listed on P. 302083-302084.
47. Memorandum to Mr. R.F. Tesh, Virginia Water Control Board, from Mr. R.W. Bolgiano, Virginia Water Control Board, re: Transmittal of the Fall 1988 Biological Monitoring Results, 11/16/88. P. 302108-302113. The results are attached.
48. Letter to Mr. Brad Chewning, Virginia Water Control Board, from Mr. John Kauffman, Virginia Department

- of Game and Inland Fisheries, 11/21/88. P. 302114-302115.
49. Report: Health Assessment for U.S. Titanium Site, Piney River, Amherst and Nelson County, Virginia, prepared by U.S. Public Health Service, 11/29/88. P. 302116-302120.
50. Letter to Mr. Garth Connor, U.S. EPA, from Mr. James A. Barclay, U.S. Department of the Interior Bureau of Mines, re: Transmittal of comments on the Feasibility Study Report on the U.S. Titanium Site, 12/16/88. P. 302121-302125. The following are attached:
- a) the comments on the Hydrosystems Feasibility Study;
 - b) a handwritten soil diagram;
 - c) an excerpt on acid mine drainage from Minerals and Materials, April/May 1988.
51. Report: Documents Reviewed, Feasibility Study, U.S. Titanium Site, Piney River, Virginia, prepared by Hydrosystems, Inc., 12/29/88. P. 302126-302129.
52. Report: Health Assessment for U.S. Titanium Site, Piney River, Amherst and Nelson County, Virginia, prepared by U.S. Public Health Service, 1/19/89. P. 302130-302135.
53. Letter to Mr. Joel Jerome, American Cyanamid Company, from Mr. Richard N. Burton, Virginia State Water Control Board, re: Comments on the Draft Feasibility Study Report, 3/15/89. P. 302136-302138. The comments are attached.
54. Report: Addendum to Feasibility Study for the U.S. Titanium Site, Piney River, Virginia, prepared by Hydrosystems, Inc., (undated). P. 302139-302176.
55. Report: Comments of American Cyanamid Company on Endangerment Assessment/Feasibility Study: U.S. Titanium Site, Piney River, Virginia, prepared by Holland & Knight, (undated). P. 302177-302395. A report entitled "Review of the Draft U.S. EPA

Endangerment Assessment/Feasibility Study" is attached.

56. Letter to Mr. Tedd H. Jett, Virginia State Water Control Board, from Mr. John E. Drew, Mason, Drew and Dragat, re: Transmittal of a report on waste copperas burial at Piney River, Virginia, 8/18/81. P. 302396-302401. The report is attached.
57. Memorandum to File and Mr. T.H. Jett, Virginia State Water Control Board, from J.A. Fromal, III, Virginia State Water Control Board, re: Information on the toxicity of iron salts on fresh water fish, 10/16/81. P. 302402-302402.
58. Letter to Mr. Ted [sic] Jett, Virginia State Water Control Board, from Mr. Gerald D. McCart, Virginia Cooperative Extension Service, re: Analysis of sludge samples and recommendations for treatment, 5/19/82. P. 302403-302412. The following are attached:
 - a) the ground water characterization data;
 - b) a memorandum regarding the biological monitoring results;
 - c) the biological monitoring results and narrative.
59. Letter to Mr. Benton G. Tinder, Sr., from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Transmittal of the modified Soil Conservation Service (SCS) plan and construction specifications, 5/24/82. P. 302413-302419. The plan and the specifications are attached.
60. Letter to Mr. Tedd H. Jett, Virginia State Water Control Board, from Mr. Benton G. Tinder, Sr., re: Transmittal of information regarding the proposed use of municipal sewage sludge at the U.S. Titanium site, 5/24/82. P. 302420-302422. A table of Sludge Characterization Data is attached.

61. Summary of a Soil Investigation, 5/29/82. P. 302423-302424. A sketch of the soil investigation is attached.
62. Memorandum to File from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Site visit to the U.S. Titanium Corporation site, 7/25/83. P. 302425-302430. The background surface water data and four Field and Laboratory Data sheets are attached.
63. Memorandum to File from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Notes of meeting held to review preliminary findings of the VPI Study, 9/1/83. P. 302431-302432.
64. Report: Evaluation of the Hazardous Waste Site at the U.S. Titanium Plant in Piney River, Virginia, prepared by Mr. Mark S. Morris, 7/84. P.302433-302744. References are listed on P. 302514. A letter regarding the transmittal of two masters theses and an additional thesis report are attached.
65. Memorandum to Mr. R.F. Tesh, Virginia State Water Control Board, and the File from Mr.R.W. Bolgiano, Virginia State Water Control Board, re: A cursory benthic survey at the U.S. Titanium site, 9/25/84. P. 302745-302756. The following are attached:
 - a) a Standard Rating Table;
 - b) a Diversity/Density Table;
 - c) a map of Piney River and survey area;

- d) the biological field data sheets;
 - e) two Biological Monitoring Reports.
- 66. Memorandum to Mr. R.F. Tesh, Virginia State Water Control Board, from Mr. R.W. Bolgiano, Virginia State Water Control Board, re: Results of a cursory benthic survey conducted on the Piney River, 6/27/85. P. 302757-302768. A report entitled, "Qualitative Benthic Survey," is attached.
 - 67. Report: Evaluation of Neutralization Requirements for the U.S. Titanium Site, Piney River, Virginia, prepared by GCA Corporation, 1/86. P. 302769-302795. References are listed on P. 302795.
 - 68. Report: Draft Statement of Work, Temporary Source Control for Area 1, U.S. Titanium Site, Piney River, Virginia, prepared by Hydrosystems Inc., 2/14/86. P. 302796-302798.
 - 69. Letter to Mr. Jerome C. Muys, Jr., Breed, Abbott & Morgan, from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Deadline for a Revised Work Plan, 8/26/86. P. 302799-302802. A memorandum regarding comments on the Draft Work Plan is attached.
 - 70. Report: Focused Feasibility Study for the U.S. Titanium Site, Revised Work Plan, prepared by Alliance Technologies Corporation, 12/5/86. P. 302803-302816.
 - 71. Memorandum to Mr. R.F. Tesh, Virginia Water Control Board, from Mr. R.W. Bolgiano, Virginia Water Control Board, re: Results of a cursory benthic survey conducted on the Piney River, 1/8/87. P. 302817-302827. The Qualitative Benthic Survey is attached.
 - 72. Letter to Mr. Lyle R. Silka, Hydrosystems Inc., from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Transmittal of information relevant to

U.S. Titanium site work, 12/7/87. P. 302828-302834.
The following are attached:

- a) a Routing and Transmittal slip;
- b) three hydrographs;
- c) two water level data tables.

- 73. Letter to Mr. Lyle R. Silka, Hydrosystems Inc., from Mr. Tedd H. Jett, Virginia State Water Control Board, re: Transmittal of a letter report summarizing the findings of recent site investigations, 12/18/87. P. 302835-302838. A letter regarding the findings of recent site investigations and a sketch of the groundwater profile at the Tailing Pond are attached.
- 74. Memorandum to Mr. R.F. Tesh, Virginia Water Control Board, from Mr. R.W. Bolgiano, Virginia Water Control Board, re: Transmittal of the results of Spring 1988 Biological Monitoring and narrative, 6/2/88. P. 302839-302842. The results are attached.
- 75. Letter to Mr. Tim Longe, Virginia Department of Waste Management, from Mr. Jeffrey A. Sitler, Hydrosystems Inc., re: Information on possible remedial actions, 6/26/89. P. 302843-302853.
- 76. Letter to Mr. Jeffery [sic] A. Sitler, Hydrosystems Inc., from Dr. Timothy Longe [sic], Virginia Department of Waste Management, re: Details of remedial action alternatives, 6/29/89. P. 302854-302855.
- 77. Report: Proposed Remedial Action Plan for the U.S. Titanium Superfund Site, Piney River, Nelson County, Virginia, prepared by Commonwealth of Virginia, 7/27/89. P. 302856-302880.
- 78. Press Release, Commonwealth of Virginia, re: Cleanup Plan Proposal for the U.S. Titanium Superfund Site, 7/31/89. P. 302881-302882.
- 79. Letter to Mr. Tedd Jett, Virginia State Water Control Board, from Mr. Barry L. Matler, Swidler & Berlin, re: Transmittal of two copies of the

Addendum to the November 10, 1988 Feasibility Study, 4/18/89. P. 302883-302924. A letter regarding the conditions of the Addendum and two copies of the Addendum are attached.

80. Letter to Mr. Tim Longe, Virginia Department of Waste Management from Mr. Jeffery A. Sitler, HYDROSYSTEMS Inc., re: Transmittal of information on a possible remedial action for Area 1 of the U.S. Titanium Site, 6/26/89. P. 302925-302935.
81. Letter to Mr. Jeffery A. Sitler, HYDROSYSTEMS Inc., from Mr. Timothy Longe, re: Comments on a possible remedial alternative for Area 1 at the U.S. Titanium Site, 6/29/89. P. 302936-302937.
82. Letter to Mr. Philip F. Koren, Esq., from Mr. Jerome C. Muys, Jr., Swidler & Berlin, re: HYDROSYSTEMS' submittal of a supplemental Addendum to the Feasibility Study for U.S. Titanium Site, 7/17/89. P. 302938-302939.
83. Letter to Dr. Tim Longe, Virginia Department of Waste Management, from Mr. Jeffery A. Sitler, HYDROSYSTEMS Inc., re: Transmittal of an Addendum to the Feasibility Study on behalf of American Cyanamid Company, 7/18/89. P. 302940-302952. The Addendum is attached.
84. Memorandum to Mr. Timothy Longe, Virginia Department of Waste Management, from Mr. Tedd Jett, Virginia Water Control Board, re: Comments on the Draft Proposed Remedial Action Plan, 7/26/89. P. 302953-302954.
85. Letter to Mr. Jonathan D. Horin, Virginia Department of Waste Management, from Mr. Fred K. Cunningham, Virginia State Water Control Board, re: Comments on the CERCLA Cleanup level to Area 5 at the U.S. Titanium Site, 7/31/89. P. 302955-302955.

86. Letter to Dr. Tim Longe, from Ms. Paul Retzler, U.S. EPA, re: Comments from a Bioassessment Work Group meeting concerning the Proposed Plan, 8/7/89. P. 302956-302960. A report regarding the concerns of the Bioassessment Work Group and the comments on the Addendum to the Feasibility Study are attached.
87. Record of decision, prepared by Virginia Department of Waste Management, October, 1989. P. 302961-303105.
88. Five-Year Review Report, U.S. Titanium Superfund Site, Nelson County, Virginia, 3/17/00. P. 303106-303120.

IV. REMOVAL

1. Memorandum to Mr. Gene A. Lucero, U.S. EPA, from Mr. Stephen R. Wassersug, U.S. EPA, re: Action Memorandum for the U.S. Titanium Site, 7/19/83. P. 400001-400006. A memorandum regarding the authorization to proceed with a remedial investigation and feasibility study at the U.S. Titanium Site is attached.

V. COMMUNITY INVOLVEMENT/CONGRESSIONAL CORRESPONDENCE/IMAGERY

1. Public Hearing Transcript of the Virginia State Water Control Board, 3/16/78. P. 500001-500006.
2. Letter to Ms. Kristina Stein, Booz, Allen & Hamilton, Inc., from Mr. James R. Miller, U.S. EPA, re: Transmittal of the Draft Community Relations Plan for the U.S. Titanium Site, 1/12/88. P. 500007-500029. The Draft Community Relations Plan is attached.
3. Letter to Ms. Paula Retzler, U.S. EPA, from Jamie Walters, Virginia Department of Waste Management, re: Transmittal of a transcript from a U.S. Titanium public meeting held August 9, 1989, 8/31/89. P. 500030-500110. The transcript is attached.
4. Letter to Mr. George Krieger, Virginia County Administrator, from Jamie Walters, Virginia Department of Waste Management, re: Transmittal of the August 9, 1989 U.S. Titanium public meeting transcript and comments on it's role in the Record of Decision, 8/31/89. P. 500111-500111.
5. Letter to Mrs. Tanith Knight, Nelson County Memorial Library, from Jamie Walters, Virginia Department of Waste Management, re: Transmittal of the August 9, 1989 public meeting transcript to be added to the Administrative Record, 8/31/89. P. 500112-500112.
6. Letter to Mr. Tedd Jett, Commonwealth of Virginia, from Jamie Walters, Commonwealth of Virginia, re: Transmittal of the August 9, 1989 U.S. Titanium public meeting transcript, 8/31/89. P. 500113-500113.
7. Public Notice, re: Extension for the public comment period on the proposed cleanup plan for U.S. Titanium Site, (undated). P. 500114-500114.